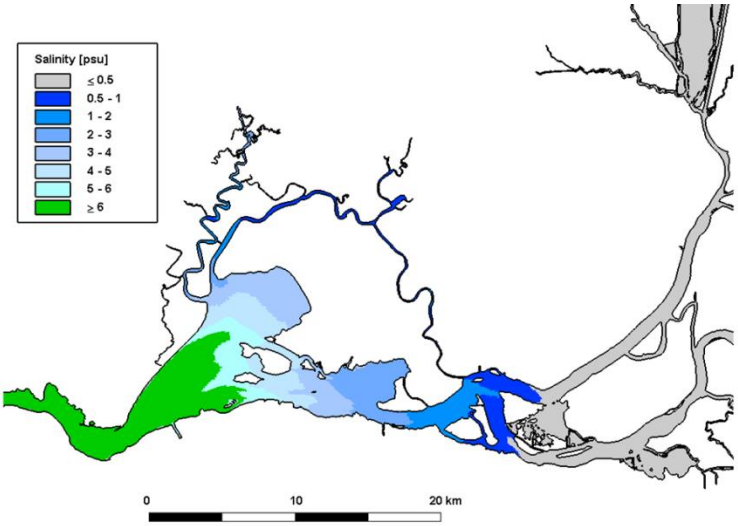
Delta Stewardship Council

ECOSYSTEM RESTORATION PROGRAM

SWAMP Surface Water Ambient Monitoring Program

The Delta Science Program, Ecosystem Restoration Program & Surface Water Ambient Monitoring Program Jointly Present a Brown Bag Seminar Series

Linking hydrodynamic complexity and salinity to Delta smelt distribution in the San Francisco Estuary



Michael MacWilliams

Delta Modeling Associates, Inc.

Thursday, Feb. 19, 2015
12:00 – 1:00 p.m.
Location: Park Tower Building
2nd Floor Conference Room
980 Ninth St - Sacramento, CA 95814

What does historic fish catch data tell us about habitat conditions?

Long-term fish sampling data from the San Francisco Estuary were combined with three-dimensional hydrodynamic modeling to investigate the relationship between historic fish catch and hydrodynamic complexity. Thirty-five complexity metrics (eight collected during Fall Midwater Trawl (FMWT) surveys and 27 derived from UnTRIM Bay-Delta model) were used to evaluate the correlation between historic Delta smelt catch and the environmental conditions. This analysis indicated that a key to the historic Delta smelt catch was the overlap of low salinity, low maximum velocity, and low Secchi depth regions. Such regions developed in Suisun Bay during 2011, but not during 2010.

Further analysis evaluated the assumption that the Low Salinity Zone (LSZ: 0.5 - 6.0 psu) adequately represents the range of conditions where Delta Smelt have been most likely to be caught in Suisun Bay based on the FMWT catch data from 1967 to 2012. This analysis showed that Delta smelt in Suisun Bay, historically, had been caught with a greater probability in the area with salinity less than 0.5 than within the LSZ. However, these conditions have been less common in Suisun Bay during fall in recent decades. A new approach for characterizing the LSZ area that is more consistent with both the historic Delta smelt distribution and the X2-abundance relationship is proposed. Modeling approaches like these provide new understanding and tools to support decision-making in pursuit of the coequal goals.

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for WebEx access information or other questions.